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Authors

Wagman, Jennifer A
Donta, Balaiah
Ritter, Julie
et al.

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Jennifer A. Wagman,¹ Balaiah Donta,²
Julie Ritter,¹ D. D. Naik,² Saritha Nair,³
Niranjan Saggurti,⁴ Anita Raj,¹
and Jay G. Silverman¹

Abstract

Husbands' alcohol use has been associated with family-level stress and intimate partner violence (IPV) against women in India. Joint family systems are common in India and IPV often co-occurs with non-violent family maltreatment of wives (e.g., nutritional deprivation, deprivation of sleep, blocking access to health care). Alcohol use increases for some parents following the birth of a child. This study examined 1,038 postpartum women's reports of their husbands' alcohol use and their own experiences of IPV (by husband) and non-violent maltreatment from husbands and/or in-laws. We analyzed cross-sectional, quantitative data collected in 2008, from women (ages 15-35) seeking immunizations for their infants <6 months

¹University of California, San Diego, CA, USA

²National Institute for Research in Reproductive Health, Indian Council of Medical Research, Mumbai, India

³National Institute of Medical Statistics, Indian Council of Medical Research, New Delhi, India

⁴Population Council, HIV and AIDS Program, New Delhi, India

Corresponding Author:

Jennifer A. Wagman, Division of Global Public Health, University of California, San Diego
Department of Medicine, 9500 Gilman Drive, MC 0507, La Jolla, CA 92093-0507, USA.

Email: jwagman@ucsd.edu

at three large urban health centers in Mumbai, India. Crude and adjusted logistic regression models estimated associations between the independent variable (husbands' past month use of alcohol) and two dependent variables (postpartum IPV and maltreatment). Overall, 15% of husbands used alcohol, ranging from daily drinkers (10%) to those who drank one to two times per week (54%). Prevalence of postpartum IPV and family maltreatment was 18% and 42%, respectively. Prevalence of IPV among women married to alcohol users was 27%. Most abused women's husbands always (27%) or sometimes (37%) drank during violent episodes. Risk for IPV increased with a man's increasing frequency of consumption. Women who lived with a husband who drank alcohol, relative to non-drinkers, were more likely to report postpartum IPV, $aOR = 2.0$, 95% confidence interval (CI) = [1.3, 3.1]. Husbands' drinking was marginally associated with increased risk for family maltreatment, $aOR = 1.4$, 95% CI = [1.0, 2.1]. Our findings suggest that men's alcohol use is an important risk factor for postpartum IPV and maltreatment. Targeted services for Indian women contending with these issues are implicated. Postpartum care offers an ideal opportunity to screen for IPV, household maltreatment, and other health risks, such as husband's use of alcohol. There is need to scale up proven successful interventions for reducing men's alcohol use and design strategies that provide at-risk women protection from alcohol-related IPV.

Keywords

intimate partner violence, husbands, alcohol use, family-level maltreatment, postpartum, low-income women, India, infants

Introduction

Intimate partner violence (IPV) and men's use of alcohol are interrelated public health concerns in India. Approximately one third of Indian women have experienced some form of IPV in their lifetime (International Institute for Population Sciences [IIPS] & Macro International [Macro], 2007) and husbands' alcohol use is consistently identified as a risk factor for IPV in different Indian settings (Berg et al., 2010; Das et al., 2013; Jeyaseelan et al., 2007; Mahapatro, Gupta, & Gupta, 2012; Poulse & Srinivasan, 2009; Subodh et al., 2014). Alcohol use by Indian men also contributes more broadly to family problems by negatively impacting health outcomes (e.g., mental health disorders and injuries), and the social and economic well-being of other household members such as immediate and extended relatives (Ghosh, Samanta, & Mukherjee, 2012; Mahapatro et al., 2012).

Although it is estimated that only 15% of Indians drink (World Health Organization [WHO], 2014), alcohol sales and use are sharply increasing in the country, primarily among men, who represent the main consumers (Benegal, 2005; Prasad, 2009; WHO, 2014). Among Indian drinkers, more than half consume at hazardous or harmful levels (Prasad, 2009) which, respectively, refers to a pattern or quantity of alcohol consumption that increases risk for, or leads to adverse health events (Babor, de la Fuente, Saunders, & Grant, 1992; Reid, Fiellin, & O'Connor, 1999), including, but not limited to, IPV (Devries et al., 2014; Foran & O'Leary, 2008), family problems and disruption (Gethin, Trimingham, Chang, Farrell, & Ross, 2016) and stress on adult family members, primarily parents who live under the same roof and close extended relatives (Orford, Velleman, Natera, Templeton, & Copello, 2013).

The relationship between men's hazardous/harmful alcohol use and perpetration of IPV against women has been well-established globally (Ferrer, Bosch, Garcia, Manassero, & Gili, 2004; Foran & O'Leary, 2008; Stith, Smith, Penn, Ward, & Tritt, 2004). Significant associations between these behaviors have been found in many community-level investigations (Foran & O'Leary, 2008) and in research with key subpopulations, such as male "batterers" (Cattaneo & Goodman, 2003; Else, Wonderlich, Beatty, Christie, & Staton, 1993), alcohol diagnosed offenders (Crane & Easton, 2017), men in alcohol/drug treatment (Bennett, Tolman, Rogalski, & Srinivasaraghavan, 1994; Gilchrist et al., 2015), and men in the military (Foran, Heyman, Smith Slep, & Snarr, 2012). There have also been many studies of alcohol use and IPV against pregnant women (Eaton et al., 2012; Fanslow, Silva, Robinson, & Whitehead, 2008; Shamu, Abrahams, Temmerman, Musekiwa, & Zarowsky, 2011). In contrast, alcohol's role in increasing women's risk of postpartum IPV victimization has only been examined in a few studies (Charles & Perreira, 2007; Silva, Valongueiro, de Araújo, & Ludermit, 2015; Woodin, Caldeira, Sotskova, Galaugher, & Lu, 2014).

The paucity of data on the relationship between hazardous/harmful alcohol use and postpartum IPV warrants attention for at least three main reasons. First, many new parents' resume or increase their alcohol intake following the birth of a child to self-medicate and/or cope with increased stressors and demands of parenthood. For instance, in a U.S.-based study with 55 married couples expecting their first child, the prevalence of problem drinking went from 1% during the second trimester of pregnancy to 13% at 6 months postpartum (Richman, Rospenda, & Kelley, 1995). Second, postpartum IPV is very common. Many women's experiences of abuse following childbirth begin before or during pregnancy (Ballard et al., 1998; Hedin, 2000). For others, the violence begins (Charles & Perreira, 2007; Martin, Mackie,

Kupper, Buescher, & Moracco, 2001) or markedly rises (Gielen, O'Campo, Faden, Kass, & Xue, 1994; Hedin, 2000; Martin, Acara, & Pollock, 2012; Stewart, 1994) after childbirth. Finally, postpartum IPV is strongly linked with multiple, adverse maternal and infant health outcomes. Compared with women in non-violent relationships, abused mothers are more likely to experience postpartum depression (Beydoun, Beydoun, Kaufman, Lo, & Zonderman, 2012; Woolhouse, Gartland, Hegarty, Donath, & Brown, 2012), delay their entry into (or not access) postnatal care, breast-feed for shorter periods of time (Campbell, 2001; Sarkar, 2008), and have reduced use of postpartum contraception (Mody et al., 2014).

Postpartum IPV also contributes to poor outcomes for children. In their review of research on IPV in early childhood, Pepler, Catallo, and Moore (2000) synthesize compelling evidence that infants and young children are at significantly heightened risk of serious negative influences at all levels of social-emotional development if exposed to IPV. For instance, infants who witness/hear violent conflict between or injury of a parent often show symptoms of posttraumatic stress disorder (e.g., eating problems, sleep disturbances, and developmental skill regression). Postpartum IPV has also been found to compromise an infant's capacity for emotional regulation during times of stress, anger, or trauma given that his or her primary caregiver is unable to fully provide protection and care and offer a sense of safety (Kaufman & Henrich, 2000; Pepler et al., 2000). Research has also found that infants exposed to IPV are more likely to develop attachment insecurities with their mothers as a result of sustained levels of high stress following frightening events (Gunnar & Donzella, 2002; Pepler et al., 2000; Zeanah et al., 1999).

The context in which postpartum IPV and alcohol consumption occur in families has not been well examined. It is possible that patterns of both behaviors following the birth of a child are influenced by the major changes characteristic of this period (e.g., altered household dynamics, extensive responsibilities of caring for an infant, disrupted sleep). Many new parents report increased levels of stress and anxiety (Perren, von Wyl, Bürgin, Simoni, & von Klitzing, 2005), as well as reductions in relationship satisfaction (Doss, Rhoades, Stanley, & Markman, 2009). It is further possible that men's continued or increased use of alcohol following the birth of a child causes or exacerbates existing stress on other family members, leading to hostile interactions with one another. Associations between alcohol use and family problems, distinct from IPV, have been found outside the perinatal period in many settings (Foran & O'Leary, 2008; Gethin et al., 2016; Orford et al., 2013), including India. One study, conducted in Kolkata, found men's alcohol use created both immediate and extended family concerns

surrounding money spent on alcohol and perceived negative influences of the man's drinking on the children (Ghosh et al., 2012). A Chennai-based community-level study found a significant dose-response relationship between men's alcohol abuse and increased suicidal attempts by women of the same household (Gupta et al., 2015).

India provides a unique location to examine the impact of alcohol use on postpartum IPV and related family dynamics given that the extended family plays a large role in society. Prior research from Mumbai, the setting of the current study, found most postpartum women cohabitated with both immediate family members and relatives in addition to their husbands and other children if they had any (Raj et al., 2011). Whereas living in this type of joint family system may provide new mothers with an in-built support system (i.e., extra family members to help care for the newborn and complete household chores and responsibilities), some research has found it was, in fact, a source of risk for postpartum abuse (e.g., insults and physical violence) and non-violent maltreatment from in-laws. For instance, many postpartum women reported their in-laws, primarily the mother-in-law, impeded their access to postpartum care for themselves or their infant, limited their reproductive choices, and dominated decisions about childcare for their own infant (Raj et al., 2011). These behavioral expressions reflect socially sanctioned gender inequities that disempower wives by constraining their capabilities as parents and autonomous, equal members of the household. They also seem to provide a supportive environment for violence as women who reported in-law abuse and/or maltreatment were significantly more likely to have also been victimized by husband-perpetrated IPV during the broader perinatal period (Raj et al., 2011). Building on these data, a recent Mumbai study examined associations between infant morbidity and husband and in-law perpetrated violence and maltreatment (e.g., deprivation of nutrition and/or sleep, punishment for not having a boy child). Findings suggest almost half (49%) of all women experienced one or more forms of non-violent abuse during the perinatal period. Most cases (75%) of IPV co-occurred with these non-violent forms of family maltreatment, which were collectively found to be more strongly associated with poor infant health (e.g., fever, colic, vomiting, respiratory illness) than husband or in-law perpetrated violence (Silverman et al., 2016). These results imply that violence against Indian women occurs in the context of pervasive and normalized maltreatment from the larger family.

The overarching goal of the current study was to expand on this prior research and investigate the role men's use of alcohol played in women's postpartum experiences of both husband-perpetrated IPV and non-violent forms of maltreatment from both husbands and other family members, referred to as gender-based household maltreatment (GBHM). The primary

aim was to examine husbands' recent use of alcohol as a predictor of physical or sexual IPV against women within 6 months of childbirth. We hypothesized that, among this sample of postpartum women, those reporting that their husband consumed alcohol in the past month would be significantly more likely to report husband-perpetrated postpartum IPV, relative to women who reported no recent alcohol use by their husband. The secondary aim was to examine husbands' use of alcohol as a predictor of non-violent maltreatment. We hypothesized that women with husbands who drank alcohol in the past month would be more likely to report GBHM from husbands or in-laws during the postpartum period.

Method

Participants and Procedures

This study uses cross-sectional, survey data collected from 1,038 women who participated in the "Mechanism for Relations of Domestic Violence to Poor Maternal and Infant Health" study between August and December 2008. Participants were married, between the ages of 15 and 35 years, and were recruited from three large urban health centers (UHCs) in three major slum communities in Mumbai, India, where migrants frequently struggle to survive amidst an environment of high-cost living. Participants for the current study were postpartum women seeking immunization for their infants 6 months old or younger. The three health centers from which participants were drawn were selected based on their slum location and provision of services to more than 100,000 residents.

Women were approached for enrollment after receiving immunizations for their children at one of the three UHCs. Participants were deemed eligible if they met the following criteria: (a) having an infant ≤ 6 months of age and (b) being willing to learn more about a study examining conflict in the family and health issues for women and children. All potential participants were led to a private room in the clinic where informed consent forms were read aloud due to concerns regarding low literacy of participants. Although most women came to the health centers alone, some were accompanied by their husband, children, or other relatives. In these cases, one study investigator would escort the participant to the private interview room, while a second study team member would engage the family member(s) in play (i.e., with children) or general or health-related conversation (i.e., with adult relatives). Women who provided verbal informed consent were led through the process of completing a quantitative survey with a trained, female research staff member. The staff member read all

questions aloud and recorded answers provided on a paper survey form. All staff members were trained in research ethics, data collection, and interviewing women experiencing IPV. The survey required between 30 and 40 min to complete and, based on the participant's preference, was conducted in Marathi (the native language of Maharashtra) or Hindi. When developing the instrument, survey items were first written in English, then translated to Marathi and Hindi, and then back-translated to English to assure fidelity to original content. Following survey completion, all participants were screened for emotional distress and were given resources for legal, mental health, and IPV-related assistance. The Harvard School of Public Health, the University of California at San Diego, and the National Institute for Research in Reproductive Health (Indian Council of Medical Research) institutional review boards approved all study procedures.

During the recruitment period, a total of 1,830 women were approached for screening. All women presenting to the clinic seeking infant vaccinations were found to be eligible based on their having an infant ≤ 6 months of age. Of these women, 61% (1,108/1,830) agreed to meet privately with a research team member to learn more about the study. Lack of time was the main reason provided for not agreeing to hear more about the study. Among the women who agreed to hear about the study, 95 (1,049/1,108) provided consent and completed the survey. A total of 11 participants (1%) were dropped from current analyses due to missing data on husband's alcohol use, IPV, or GBHM, yielding a final adult female sample of 1,038.

Measures

Demographics. Demographic measures assessed included single-item measures of female participant's age at interview, if she was married < 18 years of age (defined as child marriage), highest level of education, past year employment, religion, and whether she was living in a joint family system (i.e., with in-laws). We also assessed whether the participant was living with her husband at the time of interview as cohabitation has been found to increase risk for IPV in multiple international settings (Abramsky et al., 2011). Single-item measures were also used to assess each participant's husband's age, education, and current employment status.

Postpartum IPV was defined in this study to include violence by husbands. Measures to assess IPV were developed based on domestic abuse and violence items from the Indian National Family Health Survey-3 (IIPS & Macro, 2007) which used a shortened and modified version of the Conflict Tactics Scale (CTS; Straus, 1979). The CTS is one of the most widely used instruments in global violence research and has been found to be both valid

and effective in measuring IPV. It was chosen for use in the Indian National Family Health Survey-3 because it can be easily adapted for different cultural contexts (IIPS & Macro, 2007). Postpartum IPV was measured via four items. Two items assessed physical abuse: (a) "Did your husband hit, push, kick, beat, or slap you?" (b) "Did your husband try to burn you?" Two items assessed sexual abuse: (c) "Did your husband insist on sex when you did not want to have sex?" (d) "Did your husband use force to make you have sex when you did not want to have sex?" All items were assessed dichotomously (i.e., yes/no), for the postpartum period subsequent to the birth of that infant (a period of 6 months or less for the current sample). An overall IPV measure was also established whereby if a participant said yes to any of these four items for the period since the recent birth, they were defined as having experienced postpartum IPV. The Cronbach's alpha of the postpartum IPV measure was .75.

Postpartum GBHM was defined as non-violent forms of abuse from husbands or in-laws occurring during the postpartum period. The GBHM measures were developed during a formative qualitative stage of the "Mechanism for Relations of Domestic Violence to Poor Maternal and Infant Health" study. The data generated were compiled into a compendium of non-violent forms of abuse that were reported to commonly co-occur with perinatal IPV (Raj et al., 2011). Nine identified GBHM items were asked separately for husbands and in-laws. These items included the following: "Did your (husband/in-laws) force you to bring money or other things from your parents' home?" "Did your (husband/in-laws) interfere in your ability to get health care for yourself?" "Did your (husband/in-laws) interfere in your ability to get health care for your children?" "Did your (husband/in-laws) stop you from getting enough food for yourself?" "Did your (husband/in-laws) stop you from getting enough food for your children?" "Did your (husband/in-laws) stop you from getting the rest you needed?" "Did your (husband/in-laws) treat you badly for not having a boy child?" "Did your (husband/in-laws) stop you from taking care of your children?" and "Did your (husband/in-laws) neglect or ignore your baby?" One item was asked exclusively about husbands: "Did you ever feel that you needed help to care for your elder children from your husband but didn't receive it?" There were two additional GBHM items not specific to husbands or in-laws that assessed burden of household labor postpartum: "Did anyone assist you to prepare meals for the household?" "Did anyone assist you to perform cleaning work for the household?" Participants responding "yes" to one or more of the husband/in-law items or "no" to either of the household work items, for the postpartum time period, were coded as having experienced partner or in-law GBHM. Like the IPV items, all GBHM-related items used to measure each of these variables

were assessed dichotomously (i.e., yes/no), for the postpartum period. To test for collinearity, correlations were assessed among the main predictor variables (IPV, partner GBHM and in-law GBHM; the correlation between husband and in-law GBHM exceeded $r = .70$ and, for this reason, husband and in-law GBHM were considered as a single variable in subsequent analyses. The final 21-item measure had a Cronbach's alpha of .84.

Husband's alcohol consumption. Husband's past month alcohol consumption was measured via two questions. All participants were asked "does your husband drink alcohol?" Those who answered "yes" were asked "how many days did he drink alcohol in the last one month."

Frequency of husband's past month alcohol consumption. Participants gave continuous responses to the question "How many days did he (your husband) drink alcohol in the last one month?" In our descriptive analysis of this outcome, we organized responses into four categories: less than once per week, one to two times per week, three to six times per week, and every day. We also included frequency of husband's alcohol use in the regression analysis, modeling the outcome dichotomously according to men who drank up to (and including) 3 days per week and 4 or more days per week during the past month.

Husband's use of alcohol during violent episodes. Participants who reported that their husband drank alcohol and that they experienced IPV were also asked "In episodes of violence which occurred during the past year, how frequently was alcohol consumed by your husband?" Responses were categorized as always, sometimes, or never.

Analyses

Basic descriptive statistics were generated for all demographic indicators, postpartum IPV, postpartum GBHM, if husband drank alcohol and husband's past month alcohol use. Chi-square analyses (for categorical variables) or t tests (to estimate means) were conducted to examine associations between demographic characteristics and postpartum IPV and GBHM. Six logistic regression models were constructed in total. The first two were developed to determine whether husband's past month alcohol use predicted postpartum IPV and GBHM. The postpartum IPV-alcohol model was restricted to women currently living with their husband ($n = 936$) as this living arrangement was found to be significantly associated ($p < .001$) with reports of IPV. The adjusted model controlled for demographic characteristics associated with

the IPV outcome in the bivariate analyses at $p < .10$ (participant's education, past year employment, religion, husband's employment, and family type) and postpartum GBHM. The adjusted GBHM-alcohol model controlled for demographic characteristics found to be associated with the GBHM outcome in the bivariate analyses at $p < .10$ (husband's education, and family type) and postpartum IPV. Two separate logistic regression models were constructed to assess the relationship between husband's frequency of past month alcohol use and postpartum IPV and GBHM. The adjusted IPV model controlled for participant's education, past year employment, religion, husband's employment, family type, and postpartum GBHM. The adjusted GBHM model controlled for husband's education, family type, and postpartum IPV. Finally, the last two models assessed associations between family type and postpartum IPV and GBHM. The adjusted GBHM model controlled for husband's education, if the woman was currently living with her husband, husband's alcohol use and postpartum IPV. All analyses were conducted using Stata software, Version 12.

Results

Table 1 displays the demographic characteristics of the 1,038 participants, by experience of postpartum IPV and GBHM. Most were Muslim (59%) or Hindu (38%). Approximately one third (32%) had been married as a child (i.e., before the age of 18 years). Almost all participants (90%) reported they were living with their husband at the time of interview, and approximately two thirds (62%) lived in a joint family system, most commonly with their mother-in-law (76%), brother-in-law (70%), and/or father-in-law (59%). Although only 11% of the female participants had worked in the past year, almost all (99%) of their husbands were employed.

Postpartum IPV was reported by 18% of participants and was significantly associated at the $p < .10$ level with the participant having less formal education ($p = .058$) and being employed in the past year ($p = .057$), and at the $p < .05$ level with religion (with the largest proportion of IPV reported by Muslim women, $p < .001$), currently living with her husband ($p < .001$), reporting postpartum GBHM ($p < .001$), husbands' alcohol use ($p < .001$), and living in a nuclear (vs. joint/extended) family ($p = .034$; see Table 1).

Women living with their spouse at the time of the postpartum interview were almost four times as likely to report husband-perpetrated IPV, relative to women living apart from their husband, odds ratio (OR) = 3.7, 95% confidence interval (CI) = [1.6, 8.7]. Therefore, we limited our analysis of the relationship between husband's use of alcohol and postpartum IPV to a subsample of 936 women (90% of the larger research sample) living with their

Table 1. Demographic Characteristics of Postpartum Women in Research Sample Recruited From a Mumbai Slum Community Health Center, by Experience of Postpartum IPV and GBHM (N = 1,038).

	Postpartum IPV						Postpartum GBHM					
	Total			IPV			GBHM			No GBHM		
	N = 1,038			17.6% (183)			82.4% (855)			41.7% (433)		
	%	n		%	n		%	n		%	n	p Value
Age in years												
<20	7.6%	79		8.7%	16		7.4%	63		7.2%	31	.681
20-24	48.3%	501		45.4%	83		48.9%	418		46.0%	199	
25-29	29.4%	305		29.0%	53		29.5%	252		30.0%	130	
30+	14.7%	153		16.9%	31		14.3%	122		16.9%	73	
Child marriage	31.5%	327		34.4%	63		30.9%	264		33.9%	147	.348
Any formal education	84.4%	876		79.8%	146		85.4%	730		82.2%	356	.058
Employed in the past year	10.8%	112		14.8%	27		9.9%	85		12.5%	54	.057
Religion												
Hindu	37.7%	391		25.1%	46		40.4%	345		35.3%	153	<.001
Muslim	58.9%	611		69.9%	128		56.5%	483		62.1%	269	
Other	3.5%	36		4.9%	9		3.2%	27		2.5%	11	
Currently living with husband	90.2%	936		96.7%	177		88.8%	759		91.5%	396	<.001
Husband's age (mean and SD)	29.1 (5.1)			29.3 (5.5)			29.0 (5.0)			29.4 (5.3)		.658
Husband has formal education	87.8%	911		84.7%	155		88.4%	756		85.0%	368	.163
Husband currently employed	99.1%	1,029		97.8%	179		99.4%	850		98.8%	428	.034
Family type												
Nuclear	38.4%	399		45.4%	83		37.0%	316		52.0%	225	.034
Joint	61.6%	639		54.6%	100		63.0%	539		48.0%	208	
										28.8%	174	<.001
										71.2%	431	

Note. IPV = intimate partner violence; GBHM = gender-based household maltreatment.

Table 2. Prevalence and Overlap of Different Forms of IPV Among Postpartum Women Living With Their Husband When Recruited From a Mumbai Slum Community Health Center.

Prevalence of IPV by Type	%	n/936
Any IPV	18.9	177
Hit, pushed, kicked, beat, or slapped her	8.8	82
Tried to burn her	0.1	1
Insisted on sex when she did not want to	13.1	123
Used force to make her have sex when she did not want to	7.5	70
Overlap of Physical and Sexual Forma of IPV	%	n/177
Both physical and sexual	16.9	30
Physical only	29.4	52
Sexual only	53.7	95

Note. IPV = intimate partner violence.

spouse during this period. Approximately one fifth (19%) of the women living with their husband after the birth of their child reported some form of IPV. The most common form of abuse experienced was the husband insisting on sex when the participant did not want to (13%), followed by being hit, pushed, kicked, beaten, or slapped (9%; see Table 2).

Among the 177 women who lived with their partner and reported postpartum IPV, more than half (54%) experienced sexual IPV (i.e., her husband insisted and/or used force to make her have sex when she did not want to) in the absence of physical IPV. One third experienced physical IPV (i.e., her husband hit, pushed, kicked, beat, slapped and/or tried to burn her) in the absence of sexual IPV; and 17% reported both types of postpartum abuse (see Table 2).

Postpartum GBHM was reported by 42% of participants and was significantly associated with the husband having less formal education ($p = .021$), reporting postpartum IPV ($p < .001$), husbands' alcohol use ($p = .009$) and living in a nuclear family and not in a joint family system ($p < .001$; Table 1). The most commonly reported forms of household maltreatment, reported by approximately one third of all postpartum women, were not receiving assistance with household meal preparation (35%) or cleaning work (34%). Being forced by husbands (8%) or in-laws (7%) to demand money or other things from their natal family, treating the woman badly for not having a boy child (husband, 4%; in-law, 5%), and preventing the woman from getting adequate rest (both husband and in-law, 3%) were also reported to have occurred during the postpartum period. These and all other forms of postpartum GBHM are shown in Table 3.

Table 3. Prevalence and Types of Postpartum Abuse Perpetrated by Husbands and in-Laws Against Women Recruited From a Mumbai Slum Community Health Center (*N* = 1,038).

	%	<i>n</i>
Any postpartum household maltreatment	41.7	433
Force women to bring money or other things from her parents' home		
Husband	8.4	87
In-laws	7.2	75
Interfere with woman's ability to get health care for herself		
Husband	1.5	16
In-laws	1.5	16
Interfere with woman's ability to get health care for her children		
Husband	1.2	12
In-laws	1.0	10
Stop woman from getting enough food for herself		
Husband	1.4	15
In-laws	1.5	16
Stop woman from getting enough food for her children		
Husband	0.5	5
In-laws	0.6	6
Stop woman from getting the rest she needed		
Husband	2.9	30
In-laws	3.3	34
Treat woman badly for not having a boy child		
Husband	4.2	31
In-laws	5.0	37
Stop woman from taking care of her children		
Husband	0.5	5
In-laws	0.6	6
Neglect or ignore woman's baby		
Husband	1.2	12
In-laws	2.0	21
Did not receive needed help from husband to care for elder children ^a	3.6	23
Did not receive assistance with household meal preparation	35.4	364
Did not receive assistance with household cleaning work	33.6	346

^aDenominator = 639; 399 excluded because they did not have older kids.

Postpartum IPV and GBHM were not mutually exclusive outcomes. Among the entire sample, 13% endured both during the postpartum period. Although 29% of participants reported postpartum GBHM alone, only 5%

Table 4. Characteristics of Husbands' Alcohol use as Reported by Postpartum Women Recruited From a Mumbai Slum Community Health Center.

Characteristic	%	n/N
Total reporting husband's alcohol use	14.6	152/1,038
Religion of alcohol users		
Non-Muslim	64.5	98/152
Muslim	35.5	54/152
Frequency of husbands' past month drinking ^a		
Less than once per week	29.1	43/148
One to two times per week	54.1	80/148
Three to six times per week	7.4	11/148
Every day	9.5	14/148
Prevalence of IPV among all alcohol users ^a	26.9	41/152
Patterns of IPV by religion of all alcohol users		
Non-Muslim drinkers who perpetrated IPV	51.2	21/41
Muslim drinkers who perpetrated IPV	48.8	20/41
Husband's alcohol use during violent episodes		
Always	26.8	11/41
Sometimes	36.6	15/41
Never	36.6	15/41

^aData on frequency was missing for some drinkers, thus denominator is lower.

experienced IPV in the absence of GBHM after childbirth. Among women who experienced IPV, most (73%) also reported family-level mistreatment and approximately one third (31%) of women who reported GBHM also reported IPV (see Table 1).

As shown in Table 1, 15% ($n = 152$) of women reported their husband drank alcohol. Of these participants, 148 provided data on their husband's alcohol use over the past 30 days. Most (54%) said their husband drank one to two times per week, 29% drank less than once per week, 7% said their husband drank three to six times per week, and 10% said their husband drank every day (Table 4).

Because differences in alcohol use exist by religion in India, with Muslims making up the lowest proportion of male drinkers (IIPS & Macro, 2007), we examined alcohol use by religion. Most drinkers (65%) were non-Muslim (i.e., Hindu, Buddhist, Christian, Parsi, Jain, Sikh). Clearly, not all Muslims abstained from alcohol use. Thus, we also examined what percentage of cases of IPV corresponded with alcohol consumption among those of different religions and found no real difference between non-Muslim and Muslim drinkers (see Table 4). The 41 participants who reported both IPV and husband's use

of alcohol during the postpartum period indicated alcohol was consumed during all (27%) or some (37%) violent episodes. Slightly more than one third of abused women (37%) reported alcohol was never used by husband when he perpetrated violence (Table 4).

Table 5 shows results from the adjusted logistic regression analyses. Women with husbands who drank alcohol were twice as likely to report postpartum IPV, relative to women with non-drinking spouses, even after controlling for potential confounders, $aOR = 2.0$, 95% $CI = [1.3, 3.1]$. Husbands' alcohol use was also found to increase women's risk for postpartum GBHM in bivariate analysis, but this association attenuated to marginal significance in the adjusted model, $aOR = 1.4$, 95% $CI = [1.0, 2.1]$, primarily after adjusting for postpartum IPV. To better understand the influence of family structure on the relationship between men's use of alcohol and their wives' experiences of violence by husbands and maltreatment from various relatives, we examined the relationship between family type (i.e., nuclear vs. joint) and both outcomes. Results indicate that women living in a nuclear family were more than two and a half times more likely than those living in a joint family system to experience non-violent maltreatment from their husband and/or in-laws, $aOR = 2.7$, 95% $CI = [2.0, 3.5]$. We examined this association for IPV as well but type of family structure was not predictive of a woman's risk for husband-perpetrated physical or sexual violence.

Discussion

Our study suggests low-income Indian mothers commonly experience IPV by husbands and non-violent maltreatment from multiple family members (i.e., GBHM) during the postpartum period. Approximately one fifth (18%) of all women interviewed reported some form of physical or sexual partner violence, and more than 40% reported non-violent abuse from husbands and/or in-laws within the first 6 months of delivering a baby. A shared risk factor for both outcomes was husbands' alcohol use which was reported by 15% of women, a figure that is consistent with WHO estimates for national prevalence of alcohol consumption in India (WHO, 2014).

A woman's risk for postpartum IPV was significantly elevated if she was cohabitating with her husband during that period, which characterized the living arrangements of most (90%) participants. However, it is important to note that some women not living with their spouse (~6%) after childbirth also experienced abuse. Thus, although living apart reduced chances of IPV, it did not entirely protect from it. Postpartum IPV was reported by 19% of women living with their husband, with sexual violence representing the most common form of abuse in this population, during the period following childbirth.

Table 5. Husbands' Alcohol use and Postpartum IPV and GBHM as Reported by Women Recruited From a Mumbai Slum Community Health Center.

Postpartum IPV as Reported by Women Living With Their Spouse					
	Total % (n/N)	% Reporting IPV	n Reporting IPV/Total N	OR [95% CI]	Adjusted OR ^a [95% CI]
Husband drinks alcohol					
No	85.3 (798/936)	17.0	136/798	1.0	1.0
Yes	14.7 (138/936)	29.7	41/138	2.1 [1.4, 3.1]	2.0 [1.3, 3.1]
Frequency of husbands' past month drinking					
Drinks ≤3 days per week	83.0 (112/135)	25.0	28/112	1.0	1.0
Drinks ≥4 days per week	17.0 (23/135)	52.1	12/23	3.3 [1.3, 8.2]	2.9 [1.0, 8.5]
Family type					
Nuclear	40.4 (378/936)	21.4	81/378	1.3 [0.9, 1.8]	
Joint	59.6 (558/936)	17.2	96/558	1.0	
Postpartum GBHM as Reported by All Women					
	Total % (n/N)	% Reporting GBHM	n Reporting GBHM/Total N	OR (95% CI)	Adjusted OR ^b (95% CI)
Husband drinks alcohol					
No	85.4 (886/1,038)	40.1	355/886		
Yes	14.6 (152/1,038)	51.3	78/152	1.6 [1.1, 2.2]	1.4 [1.0, 2.1]
Frequency of husbands' past month drinking					
Drinks ≤3 days per week	83.9 (125/149)	47.2	59/125	1.0	
Drinks ≥4 days per week	16.1 (24/149)	66.7	16/24	2.2 [0.9, 5.6]	
Family type ^c					
Nuclear	38.4 (399/1,038)	56.4	225/399	2.7 [2.1, 3.5]	2.7 [2.0, 3.5]
Joint	61.6 (639/1,038)	32.6	208/639	1.0	1.0

Note. IPV = intimate partner violence; OR = odds ratio; CI = confidence interval; GBHM = gender-based household maltreatment.

^aAdjusted model controls for participant's education, past year employment, religion, husband's employment, family type, and postpartum GBHM.

^bAdjusted GBHM model controls for husband's education, family type, and postpartum IPV.

^cAdjusted GBHM model controls for husband's education, husband's alcohol use, and postpartum IPV.

Physical IPV was also experienced and 17% of women endured both types of abuse. Relative to women living together with extended family members, postpartum IPV was reported by a higher proportion of women living in a nuclear family, suggesting the joint family structure might offer wives protection from husband-perpetrated violence. However, the association between type of family and postpartum IPV was not statistically significant.

Among women living with their spouse, those married to drinkers were twice as likely to experience physical or sexual abuse, relative to those married to non-drinkers, $aOR = 2.0$, 95% $CI = [1.3, 3.1]$. These results are consistent with previous investigations from India that found men's alcohol use was significantly associated with perpetration of violence against wives/female partners (Berg et al., 2010; Das et al., 2013; Jeyaseelan et al., 2007; Poulouse & Srinivasan, 2009; Subodh et al., 2014). Expanding on these results, our study implies that risk for IPV rises with increasing frequency of husbands' drinking. Specifically, we found women married to men who drank alcohol on four or more days per week reported IPV more frequently than women whose husbands drank on three or fewer days per week, $aOR = 2.9$, 95% $CI = [1.0, 8.5]$, indicating a dose-response. This also highlights that not all drinking is harmful. In fact, approximately one third of all women in violent relationships reported alcohol was never used by their husband when he perpetrated physical or sexual abuse. To better understand the relationship between alcohol use and violence, research should be designed to detect and distinguish between moderate, hazardous, and harmful drinking, as well as alcohol dependence. In our study, not all husbands who drank alcohol were violent and not all violent husbands drank. Thus, factors surrounding men's use of alcohol may be particularly important for understanding women's experiences of IPV in general and during the unique postpartum period and may be a useful area for future research.

More prevalent than IPV against mothers during the postpartum period were a broad range of different forms of non-violent abuse by husbands and/or the in-laws. Those most commonly experienced were not receiving assistance with household meal preparation or cleaning. Less frequently mentioned were being forced by husbands or in-laws to demand money or other things from their natal family and being treated badly for not having a boy child. The substantial prevalence of multiple forms of family-level maltreatment of Indian wives reflects the way in which subordination, disrespect, and emotional abuse against them are condoned and normalized in Indian families. Our research population is defined by a predominance of joint family systems meaning young wives have increased daily exposure to both their in-laws and their risk for GBHM. Interestingly, however, living in the same household as extended family members (compared with a nuclear setting)

seemed to offer women protection from non-violent maltreatment from husbands and in-laws during the postpartum period. Extended family residence has been associated with lower risks of violence against women in other studies as well, in settings such as Jordan (Clark, Silverman, Shahroui, Everson-Rose, & Groce, 2010) and Bangladesh (Koenig, Ahmed, Hossain, & Khorshed Alam Mozumder, 2003). It is thought that the degree to which extended family members, particularly mothers-in-law, are supportive of wives living with their marital families seems to make the biggest difference with regard to their risk for abuse. In other words, women who have supportive relatives are at lower risk for experiencing violence and maltreatment from them, as well as their husbands (Clark et al., 2010). This is likely the case with women living in nuclear families as well since even women not living with their husband's parents/family are strongly influenced and controlled by them (Fernandez, 1997). In our study, however, we did not examine factors that facilitate supportive, protective family environments for Indian women, thus can only speculate on the reasons behind our findings.

The period of transitioning to parenthood is a key time for the health and development of mothers, infants and their families. In India, there is a cultural practice of postpartum confinement (of up to 40 days) of the new mother and her infant so as to protect them from exposure to illness and evil spirits. These practices are typically upheld by the woman's female in-laws, relatives, and elders and this period is meant to be one of protection and caring for the woman and her newborn (Kim-Godwin, 2003). Despite this tradition and the special needs of postpartum mothers, many experience IPV and GBHM during this period. Husbands' alcohol use exacerbates risk for both. Interventions to effectively reduce violence and maltreatment of postpartum mothers are urgently needed. A few initiatives have been implemented in India to help improve women's perinatal health, such as participatory women's groups to raise awareness and mobilize communities to take action to improve perinatal outcomes (More et al., 2012; Tripathy et al., 2010), cash incentives for using health care-based obstetric care (Lim et al., 2010), and home-based newborn care (Bang, Reddy, Deshmukh, Baitule, & Bang, 2005). Nonetheless, few services provide screening or interventions for Indian women dealing with IPV and/or other forms of domestic maltreatment, in general and during the postpartum period. Furthermore, we are unaware of any programs that address women's experiences of and risks related to their husbands' harmful use of alcohol. Our results support the value of providing targeted services for women contending with these issues. Furthermore, our findings can be used toward the design of effective, setting-specific approaches that target alcohol use as a modifiable determinant of both IPV and non-violent maltreatment of Indian wives.

Our study's findings should be interpreted in light of several limitations. First, our independent variable (husband's recent alcohol use) was measured via women's reports on their husband's behavior, that is, we did not interview male partners, which might bias the results. However, research comparing husband's and wife's reports (of husband's) problem drinking has found there is high concordance between partners' responses about the man's drinking (Satyanarayana et al., 2010). We therefore feel wives' reports are likely reliable proxies of their husbands' alcohol consumption. Second, our measures of IPV and GBHM are self-reported and might be underestimated due to social desirability bias. Looking at our results and those from other studies in Mumbai and India more broadly (Das et al., 2013; IIPS & Macro, 2007; Raj et al., 2011), however, suggests comparability in the scope of abuse reported. Moreover, with respect to IPV measures, we did not collect data on the frequency or severity of postpartum abuse. We were therefore unable to distinguish between repeated and isolated events, as well as severe/moderate violence from minor abuse. Thus, all reported experiences of violence were treated equally in our analysis whereby it is most likely that some women were exposed to more frequent and more severe forms of abuse than others. In addition, our findings from this low-income population might not be generalizable to Indian mothers who do not seek immunizations for their infants and the study has limited generalizability to higher income individuals. Research confirms that alcohol use is significantly higher among lower socioeconomic urban sections of the country (Benegal, 2005; Subramanian, Davey Smith, & Subramanyam, 2006), such as where our study was conducted. Furthermore, despite examining differences in alcohol use by religion, we did not investigate how patterns differed by ethnic group.

Another limitation is that we did not collect data on quantity, exact frequency, or husbands' dependency on alcohol. Thus, despite our findings suggesting a dose-response relationship between the approximate frequency of husbands' alcohol consumption and their wives' increasing risk of violence, these results must be interpreted with caution as we only asked about the number of days that men drank in the past month. We did not ask about the number of drinks consumed per day or the size and type of each alcoholic beverage. We recommend future research with women include questions that elicit more detailed and comprehensive information about their husband's alcohol use. It would be ideal to also collect data from the men themselves, using a validated instrument, such as the "Alcohol Use Disorders Identification Test" (AUDIT; Babor et al., 1992) designed to detect hazardous drinking, harmful drinking, or alcohol dependence. The cross-sectional nature of our data also poses limitation in that it precludes our ability to elucidate alcohol's temporal relationship with IPV or GBHM. Furthermore, although we asked

women whether alcohol was used by their husband's during past year episodes of IPV, we are unable to distinguish how many of these reports were limited to the postpartum period. We recommend longitudinal, larger scale assessment be done to precisely measure the magnitude and determinants of men's alcohol use in this setting, and fully understand the role that husbands' alcohol consumption plays in the context of women's postpartum experiences of domestic violence and maltreatment in India. Future research should also clarify the role and timing of consumption of alcohol during abusive events and inform interventions to mitigate risk or provide timely referral. Finally, our survey instrument did not include questions to measure women's use of alcohol. It has been found that although women consume less alcohol than men, they have increased risk of alcohol-related harms (NIAAA, 2008), and focused alcohol prevention research with women is needed. However, government statistics indicate that only 2% of Indian women drink (IIPS & Macro, 2007) and, compared with men's drinking, women's harmful alcohol use is a less reliable predictor of their experiences of physical IPV during the transition to parenthood (Woodin et al., 2014).

Conclusion

This study adds important evidence to current understanding of husband's alcohol consumption as a risk factor for IPV among Indian women (Berg et al., 2010; Jeyaseelan et al., 2007; Poulse & Srinivasan, 2009; Subodh et al., 2014) by specifying these associations during the postpartum period, a time of stress, transition, and high maternal and child health risk. Furthermore, this study builds on existing knowledge by demonstrating that men's alcohol use is not only associated with husband-perpetrated abuse but also with non-violent forms of mistreatment by both husbands and other family members. These results suggest protocols for screening women for IPV should also include other more prevalent forms of family-level maltreatment, and that such screening during postpartum care visits may provide indications of other forms of risk (e.g., husband drinking), offering an opportunity for counseling or other intervention. Furthermore, our findings strongly implicate the need for scaling up proven successful interventions for reducing men's alcohol use and providing protection for women at risk from alcohol-related IPV (Pelto & Singh, 2010; Schensul, Saggurti, Burleson, & Singh, 2010)

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Author Biographies

Jennifer A. Wagman, PhD, MHS, is an assistant professor in the Division of Global Public Health and Center on Gender Equity and Health at the University of California, San Diego, Department of Medicine. Her research focuses on the relationship between women's experiences of intimate partner violence and adverse reproductive health outcomes; and the development of community and clinic-based violence prevention interventions that can be implemented internationally. Her more recent work focuses on the role that alcohol plays in increasing women's risk for violence and HIV/STI infection.

Balaiah Donta, PhD, MSc, is a statistician by training and is Scientist G (Director Grade) at the National Institute for Research in Reproductive Health in Mumbai India. His research interests include sampling techniques and large scale sample surveys, enhancing male partnership in sexual and reproductive health, and expanding contraceptive choices.

Julie Ritter, MPH, is a research analyst for the Center on Gender Equity and Health in the Division of Global Public Health at the University of California, San Diego, Department of Medicine. She specializes in biostatistics and her experience includes data management and analyses for population-based studies as well as program evaluation, including randomized controlled trials. Most of her work has focused on research related to maternal and child health in the United States as well as abroad in Asia, Africa, and Central America. Her research interests include maternal and child health and disadvantaged or high-risk populations.

D. D. Naik, MA, MPS, DPM, works on community-based and social research at the National Institute for Research in Reproductive Health in Mumbai, India. His research interests include male involvement in sexual and reproductive health, gender issues, violence, and cervical cancer. He has previously worked on community-based programs focused on leprosy and polio. He has more than 30 years of experience in community-based research.

Saritha Nair, PhD, is a demographer by training. She currently works as a socio-behavioral scientist at the National Institute for Research in Reproductive Health in Mumbai, India. She works in the areas of sexual and reproductive health, gender issues, and male involvement in reproductive health.

Niranjan Saggurti, PhD, is an associate with the Population Council's HIV and AIDS program, based in New Delhi, India. He is a demographer and biostatistician by training, and has approximately 15 years of experience conducting research on sexual and reproductive health, HIV/STI, gender-based violence, and the intersection of these issues in India and other highly affected settings.

Anita Raj, PhD, is a professor in the Division of Global Public Health and director for the Center on Gender Equity and Health at the University of California, San Diego, Department of Medicine. She is a developmental psychologist by training, with more than 20 years of experience conducting research on sexual and reproductive health/HIV/STI, gender-based violence, substance misuse and abuse, and the intersection of these issues. Her current research is based in North America, South Asia, and Russia.

Jay G. Silverman, PhD, is a professor in the Division of Global Public Health and research director for the Center on Gender Equity and Health at the University of California, San Diego, Department of Medicine. His research focuses on the health-related consequences and prevention of gender-based violence against adolescent and adult women (e.g., intimate partner violence, sexual assault, sex trafficking) globally. His recent research has centered on implications of intimate partner violence and commercial sexual exploitation for heterosexual HIV/STI infection and for reproductive and child health.